

By Mr. Hind, at South Villa Observatory.

“ Beginning of the eclipse at $11^h 25^m 18^s$ mean time. The end was not observed.

“ Nothing unusual was remarked. The shadow had a greenish tinge. About the time of greatest phase it was dark enough to render the eclipsed limb barely traceable with a power of 50 on the eleven-feet refractor.”

Mr. Chalmers, at Weston-super-Mare, observed as follows :—
“ I saw a star of the sixth magnitude approaching the moon. It travelled along the dark edge, impinging on it, for about 6^m or 7^m . At a quarter past one it was occulted, disappearing entirely. Within two minutes it reappeared, and again travelled along the edge of the moon for about 2^m or 3^m . It was then a second time occulted, and reappeared in about 10^m , when it finally quitted the moon.”

On the Longitude of Hobarton, Van Diemen's Land.

By Commander Shadwell, R.N.

This determination is deduced from meridian transits of the moon observed by Lieut. Kay, R.N., in the years 1843, 4, and 6, while in charge of the Magnetic Observatory there. The instrument employed is an excellent transit by Troughton and Simms, of 30 inches focal length, and $2\frac{3}{4}$ aperture, mounted on an iron stand. The position is stated to be “ in the garden of the Magnetic Observatory at Rossbank, about a mile outside the town of Hobarton.”* Commander Shadwell, after a careful examination of the observations, level readings, &c., speaks highly of the correct adjustment of the instrument and the skill of the observer.

There is a large gap in the series, caused by the breaking of the tube of the level, which was sent to England for reparation. One or two spare tubes should always accompany the transit on distant expeditions, and, in case of need, an observer should be ready to supply the place of the level by observations in a mercurial surface.†

In computing Lieut. Kay's observations, Commander Shadwell has used Mr. Riddle's formula, taken from the twelfth volume of the *Memoirs* of the Society, except that he has applied “ the sidereal time of the moon's semidiameter passing the meridian ” to

* This description is somewhat vague, the site of the transit has probably been connected with some fundamental point, to which the station of Hobarton is referred ; if not, no time should be lost in effecting the connexion.

† Either by an eyepiece, with which he can see the wires reflected, looking downwards, and so adjust ; or by noting the transits of two or three high known stars, as seen in the mercury, which, compared with transits of other known stars, seen *directly*, will give an excellent level error, and with very little trouble.

the time of transit of the bright limb, to get the right ascension of the moon's centre at the time of transit.

In taking the means of the various results, Commander Shadwell has followed Mr. Taylor (Vol. xvi. of the *Memoirs* of the Society), and "assigned to each night's observations a weight proportional to the square root of the number of stars compared with the moon, and multiplied by the motion of the moon in right ascension during one hour of longitude, using the mean of her true motion for the interval between the observations." *

Treating the observations in this manner, Commander Shadwell finds the following longitude of Lieut. Kay's station, Hobarton, by comparison with the English standard observatories :

	By 1st Limb of Moon.			Obs.		By 2d Limb of Moon.			Obs.
	h	m	s			h	m	s	
Greenwich	9	49	26.03	E. 9		9	49	15.68	E. 3
Edinburgh			24.12	14				21.72	4
Cambridge			31.94	4				20.24	9
Oxford ..			25.67	5					
Mean	9	49	26.06	32		Mean	9	49	19.38 16

Mean of both limbs $9^h 49^m 22^s.72$ E $= 147^\circ 20' 40''$ E.

Lieut. Kay finds the latitude of his observatory, by 40 circum-meridian altitudes of the sun $= 42^\circ 52' 12''.6$ S.

Proposal of a Method for Eliminating the Effect of Personal Equation in Computing Longitudes from Transits of the Moon.

By Mr. Sheepshanks.

"Many years ago a practical observer threw out the idea of determining longitudes by transits of the sun. He had, as may be imagined, a very imperfect idea of the nature of the problem,† but his mistake suggested to me the following remarks, which may, perhaps, be of use, though in a very different way from that proposed.

"The effect of irradiation is, I think, to be most easily ascertained by observations on *Venus*, in the manner suggested by the Astronomer Royal, and more explicitly pointed out in a paper read at the last Meeting, but besides an error from this cause or from a variation in the apparent diameter due to the imperfection of the telescope, there is undoubtedly a personal equation in *observing a limb* as distinguished from a *star*, and most probably a *different*

* The proper mode of combining moon-culminating determinations requires considerable care ; there is not, so far as we know, any English solution which can be considered as a fair approximation to the most *probable* result.

† Even now it is not uncommon to hear of young astronomers observing lunar transits for determining *minute* differences of longitudes, and complaining of the discrepancies they find. Such observations are excellent practice, but not available to the object proposed.